aritech

UN2011 Universal Node Installation Manual

Content

Important information

Limitation of liability

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Installation in accordance with this manual, applicable codes, and the instructions of the authority having jurisdiction is mandatory.

While every precaution has been taken during the preparation of this manual to ensure the accuracy of its contents, UTCFS assumes no responsibility for errors or omissions.

Advisory messages

Advisory messages alert you to conditions or practices that can cause unwanted results. The advisory messages used in this document are shown and described below.

WARNING: Warning messages advise you of hazards that could result in injury or loss of life. They tell you which actions to take or to avoid in order to prevent the injury or loss of life.

Caution: Caution messages advise you of possible equipment damage. They tell you which actions to take or to avoid in order to prevent the damage.

Note: Note messages advise you of the possible loss of time or effort. They describe how to avoid the loss. Notes are also used to point out important information that you should read.

Introduction

Description

The UN2011 universal node provides an access point for external systems to the FP2000 / KSA1200 ARCNET networks.

Figure 1: UN2011 universal node layout
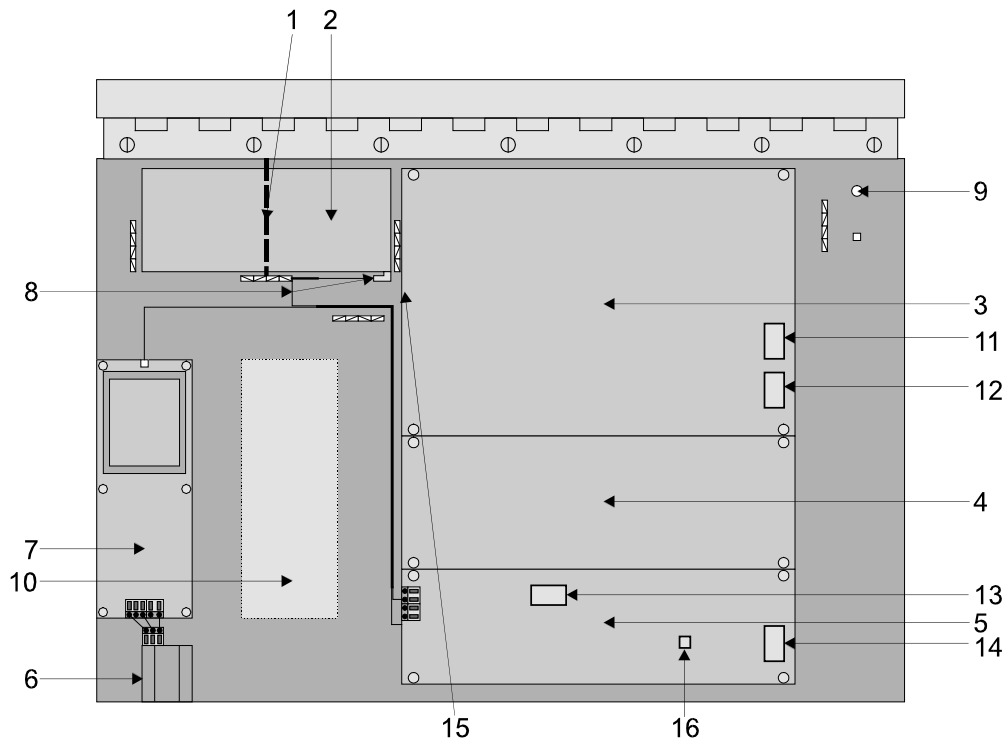
1. (1) Strap to hold battery in place
2. Battery – 12 V, 1.2 Ah (not included)
3. Host CPU card (FC2011)
4. Network card (NC2011/NC2051)
5. Power supply (PS1200U)
6. Mains plug with fuse
7. Transformer
8. Battery terminals (Note: when connecting battery observe correct polarity)

9. Mounting holes 5 mm diameter (4X)
10. MOD2000 modem (optional)
11. Serial port (SER1)
12. Serial port (SER2)
13. Modem power connection
14. Fault relay
15. Memory lock and service mode switches
16. Start-up switch

Power supply

The UN2011 universal node is powered from mains. Provision is made for charging an internal battery (not supplied) to serve as a standby power supply if mains power fails. Space is provided to mount the battery inside the unit. The power supply is fitted with a connection to supply power to a modem (MOD2000).

A fault relay is supplied on the power supply board. This relay can be used to indicate a system fault.

Mains power connection

When connecting the mains plug to a suitable power cord, ensure that mains Live is connected to the terminal marked "L", mains Neutral is connected to the terminal marked "N" and that mains Earth is connected to the terminal marked "⏚".

ARCNET interface

A NC2011 network card is fitted as standard to provide for interfacing to the panel ARCNET network. Using network extension modules NE2011/NE2051 the unit can be configured to provide for conversion between optical and RS-485 mediums as well as implementation of a wide range of topologies. For details regarding ARCNET network topologies refer to the system network configuration guide.

Interface to external RS232 systems

Connections to external systems are made by means of a RS232 cable supplied with the universal node. Two RS232 ports are provided. These are referred to as SER1 and SER2.

A modem (not supplied) is required if the UN2011 is to be interfaced to a telephone line. The modem (MOD2000) must be ordered separately and installed by the user. Space for the modem is provided inside the universal node.

Configuring the UN2011

The universal node is provided with default configuration settings for both serial ports SER1 and SER2.

Installation

Before installing the UN2011

WARNING: This product must be installed by qualified personnel adhering to the EN 54-14 (UNE23007-14) standard and any other applicable local authority laws.

Observe the following before attempting to install this product:

- Ensure that the correct installation procedure for the equipment is followed.
- Check that the input voltage of the equipment corresponds with that of the power outlet before connecting it to mains power.
- Always disconnect the unit from mains power before opening it. Close the unit before connecting power.
- Shock hazards may exist if the universal node is not properly earthed.
- Ensure that the lid of the product is in the closed position and that the two screws provided for fixing the lid in position are properly tightened.
- Any modification, maintenance or repair are permitted only by authorised personnel.

To ensure safe operation and to keep the product safe, pay heed to the information, cautions and warnings in this manual. Failure to do so will violate the safety standards of design, manufacture and intended use of the equipment.

Installation procedure

The following installation procedure must be followed for installing the UN2011. It is assumed that the ARCNET network design is complete.

Configuring and connecting the ARCNET card to the FP2000 network

1. Ensure that mains power is disconnected from the universal node before opening it; disconnect the battery.

2. Ensure that the default configuration of the ARCNET Network meets the requirement (node ID / operational mode / data rate / topology)

3. Configure and connect the ARCNET Card NC2011 as follows (bus topology only):

   - The "Repeat Mode" jumper J1 must be in the "B" position for all configurations except for the "Ring Master" in a "Half Duplex Ring", where it has to be in the "A" position (see Figure 2 on page 4).

   - Determine if the universal node is positioned at an end-of-line position. If it is, then the RS485 Line must be terminated with an end-of-line resistor equal to the characteristic impedance of the cable. Insert jumper J1 next to the RS485 connections on the network extension card. This terminates

into a resistance of 120 Ω. Resistance can be added if the cable characteristic impedance is not 120 Ω.

- Ensure that the screen of the RS485 cable is continued between nodes and that it is grounded at one point only. This can be done through inserting a jumper J2 on the network card.

- Connect the RS485 wires

For more information on topologies, network cards, network extension cards as well as wiring refer to the FP2000 / KSA1200 Network Configuration Guide.

Figure 2: RS485 network card connections (NC2011)
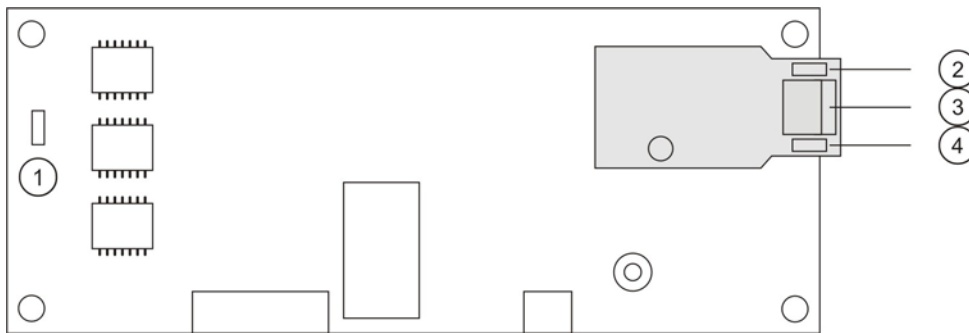
1.	Repeater mode selection.	**3.**	Channel A.
2.	Jumper termination end-of-line (J1).	**4.**	Jumper-Earth connection (J2).

Installation of a battery

Install the battery as follows:

1. Ensure that mains power is disconnected before opening the unit.

2. Ensure that the battery selected complies with specification (see "Technical Specifications" on page 10).

3. Remove the protective cover from the double sided self adhesive tape and position the battery as shown in Figure 1 on page 1. Fix it in position with the strap provided. Ensure that the strap is sufficiently tightened to prevent it from coming lose.

4. Connect the battery as shown. Observe correct polarity. Incorrect polarity can seriously damage the unit.

Connecting the power supply and fault relay

Connect the power supply and fault relay as follows:

1. Ensure that the mains power is disconnected before opening the unit.

2. Connect the fault relay as shown in Figure 3 below.

3. Route the wires away from sharp edges and corners and fix in position.

Figure 3: Fault relay connections
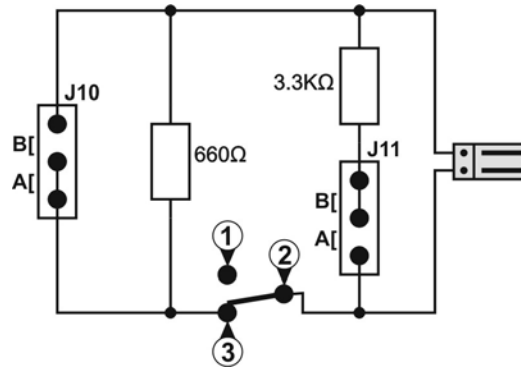
The relay is shown in the fault condition.	**2.** Common (C)
1. Normally open (NO)	**3.** Normally closed (NC)

Note: All components shown are mounted on the PS1200 board.

Connecting the RS232 port

Connect the RS232 port as follows:

1. Ensure that the universal node is disconnected from mains power before opening it and that the battery is disconnected.

2. Ensure that the default configuration of the serial port SER2 (as detailed in "Default settings" on page 8) meets that of the external RS232 system. If not see "Changing Default Settings" on page 8.

3. Check the RS232 cable.

4. Connect the RS232 cable to the serial port SER1 on the CPU card as well as to the RS232 port of the External System.

5. Configure the external system (Unique Node Identification, RS232 protocol parameters).

6. Connect mains and battery to the universal node and start the external system.

Note: Use a standard FP2000 / KSA1200 serial cable to connect to the external system.

Figure 4: DB9 (UN2011 – female) to DB9 (PC side – female) connection

DB9	Direction	DB9
RXD 2	←	3 TXD
TXD 3	→	2 RXD
GND 5	—	5 GND
CTS 8	←	7 RTS
RTS 7	→	8 CTS
DCD 1	←	
DSR 6	←	
RI 9	←	4 DTR
	→	1 DCD
	→	6 DSR
DTR 4	→	9 RI
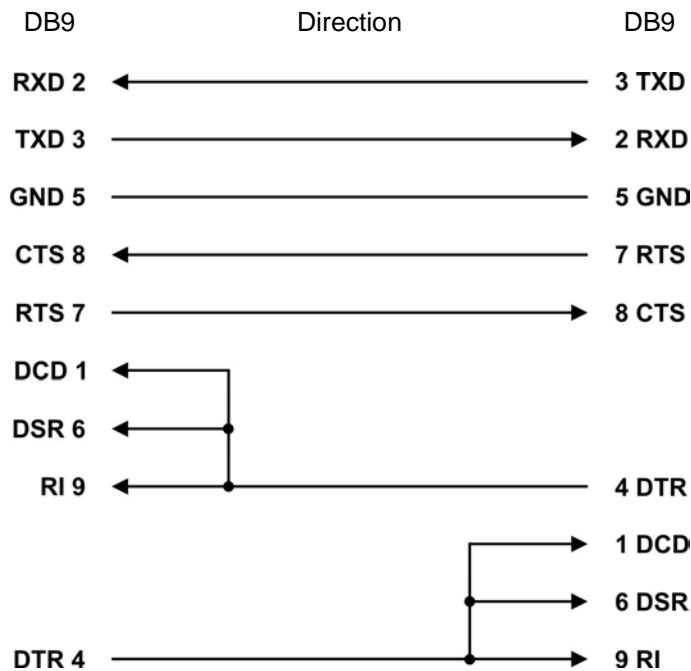
Connecting the modem

The following procedure describes the installation of the MOD2000 modem.

The MOD2000 modem (not supplied) is provided with a bracket for wall mounting. For installing this bracket into the Universal node see Figure 1 on page 1:

1. Remove the protective cover from the double sided self adhesive tape on the rear mounting surface of the bracket supplied with the modem.

2. Position the mounting bracket inside the universal node and fix in position using the double sided self adhesive tape.

3. Before connecting the Modem to the universal node ensure that the battery and the mains power is isolated.

4. Carefully study the modem user guide. For connecting the modem to the universal node and telephone Line (see Figure 5 on page 7).

5. Connect the Earth wire leading from the modem to the Earth stud inside the universal node. The modem and associated circuitry is only protected if this connection is made.

6. Connect the power harness leading from the modem to the power supply. Observe correct polarity. The connector leading to the printer is not used and should be tied down using mounting studs provided inside the Universal node.

7. Connect the RS232 input on the modem to serial port SER2.

8. Connect the telephone line to the modem protection board (use the adapter supplied if required).

9. Slide the modem into the bracket inside the panel and fix all cables in position using the hardware supplied. Ensure that the modem cannot slide out of the bracket if the universal node is turned upside down.

10. Restore battery and mains power to the universal node and turn the power switch and the modem on.

11. Configure the serial port SER2 (see "Changing Default Settings" on page 8).

Figure 5: Modem MOD2000 interconnection

1. 5V to printer (not used). Fix in position to prevent contact.

2. To 5V power supply.

3. To telephone line (adapter may be required).

4. Phone (not used).

5. Line.

6. To SER2

7. Modem.

8. Line

Software configuration

Default settings

1: Default configuration settings

Parameter	Value / Description
Network node address	0/5
	Note: every node on the network must have a unique address.
Network operational mode	15/15
	Note: the operational mode must be the same for all items connected to the network.
Serial port SER1	Set-up mode - this allows for direct connection to a PC to enable upload or download of data using PCC2000, PCE2000 and PCM2000 applications.
	Baud rate 9600.
	8 data bits.
	1 stop bit.
	No parity.
	DTE Equipment.
Serial port SER2	Port is allocated as emulation port (PCE700 in emulation mode can be used to connect to the universal node).
	Baud rate 9600.
	8 data bits.
	1 stop bit.
	No parity.
	DTE Equipment.
ARCNET port	Data rate 156 kbps / Bus

Changing default settings

Changing the default setting of SER1 should be with emulation via SER2 or via the network from another PC.

Modem settings

Modem Settings at the universal node

The following procedure is to be followed to configure serial port SER2 for a modem application:

1. Give the UN2011 universal node a Node ID (if this has not already been done):

    SYSTEM\CONFIGURATION\ID. (Format 0/R or P/0) (R = Repeater, P = Panel)

    Note: The universal node can restrict external access to the network via the modem to a single node ID. This is done by setting the un-m mask to 0/x. (x = id of PC acting as global repeater). Care has to be taken that the used ID is not used elsewhere in the network.

2. Assign the serial port SER2 to be a modem port:

    SYSTEM\CONFIGURATION\COMMUNICATION\PORT SETUP : SER(2) : MODEM

3. Complete your modem set-up:

    SYSTEM\CONFIGURATION\COMMUNICATION\MODEM

    The following parameters must be configured:

    - Wait for connection
    - Pause between dials
    - Max. dialling attempts
    - Init string
    - Dial command
    - Escape
    - Hang-up
    - Test
    - ID (this is the identification string of the installation site. This string is used by the UTC F&S PCM2000 Maintenance Manager software to identify the site.

    Note: These settings may also be configured (depending on modem type) using the Modem function in the SYSTEM\SET DEFAULT menu.

Technical specifications

Mechanical

Dimensions	65 x 400 x 300 mm
Weight without batteries	5 kg

Electrical

Power supply	230 VAC, 50 Hz, 10 VA
Weight without batteries	5 kg
Fuse	160 mA, 250 V T
Battery	1.2 Ah, 12 V
Fault relay maximum switching current	2 A at 24 VDC
Fault relay maximum power rating	50 WDC

Environmental

Working temperature	0 to 40°C
Storage temperature	-30 to 65°C
Relative humidity	80% maximum without condensation

Data communications

Serial ports	2
ARCNET port	1

RS232 protocol (default)	**RS485 protocol (default)**
• 8 data bits	• 156 Kbps
• 1 stop bit	• Bus topology
• No parity	On options - refer to FP2000 Reference Guide
• 9600 bits per second	
• DTE equipment	
On options - refer to FP2000 Reference Guide	

Appendix: Emulation control keys

No.	Description	Keyboard key
0	Reserved	Ctrl+@
1	Scroll	Ctrl+A
2	Display Alarm	Ctrl+B
3	Reserved	Ctrl+C
4	Print Screen	Ctrl+D
5	Alpha Numeric	Ctrl+E
6	Right Arrow	Ctrl+F
7	Reserved	Ctrl+G
8	Left Arrow	Ctrl+H
9	Silence Buzzer	Ctrl+I
10	Down Arrow	Ctrl+J
11	Reset	Ctrl+K
12	Disable	Ctrl+L
13	Enter	Ctrl+M
14	Test	Ctrl+N
15	Sound Sounder	Ctrl+O
16	Sounder Delay	Ctrl+P
17	Sounder Disable	Ctrl+Q
18	Silence Sounder	Ctrl+R
19	Fire Brigade Disable	Ctrl+S
20	Fire Brigade Delay	Ctrl+T
21	Reserved	Ctrl+U
22	Fire Brigade Stop	Ctrl+V
23	Reserved	Ctrl+W
24	Reserved	Ctrl+X
25	Reserved	Ctrl+Y
26	Up Arrow	Ctrl+Z
27	Exit	Ctrl+[
28	Reserved	Ctrl+\
29	Panel	Ctrl+]
30	All	Ctrl+^
31	Fire Brigade signal	Ctrl+_